CLAIMS

Ins A1

1. An electromagnetic transponder of the type including a parallel oscillating circuit adapted to being excited by a series oscillating circuit of a read/write terminal when the transponder enters the field of the terminal, wherein the components of the oscillating circuit of the transponder are sized so that the coupling coefficient between the respective oscillating circuits of the terminal and of the transponder rapidly decreases when the distance separating the transponder from the terminal becomes greater than a predetermined value.

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2. The electromagnetic transponder of claim 1, wherein the predetermined value corresponds to 1 centimeter.

Ins A2

3. The electromagnetic transponder of claim 1, having an oscillating circuit not including a capacitor, the stray capacitance of the inductance performing the function of a capacitive element for the oscillating circuit.

4. The electromagnetic transponder of claim 1, wherein an inductance of the parallel oscillating circuit is maximized, a capacitance of this oscillating circuit being minimized.

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5. The electromagnetic transponder of claim 1, wherein the inductance of the parallel oscillating circuit is chosen in accordance with the following relation:

$$kopt = \sqrt{\frac{R1L2}{R2L1}},$$

where kopt is the coupling coefficient providing a maximum voltage across the parallel oscillating circuit, R1 is the series resistance of the series oscillating circuit, R2 is the equivalent resistance of the transponder brought in parallel on inductance L2, and L1 is the inductance of the series oscillating circuit.

6. The electromagnetic transponder of claim 1, wherein the components of the oscillating circuit of the transponder are sized based on an operating point at a zero

distance, chosen to correspond to a coupling coefficient smaller than an optimal coupling coefficient in accordance with the following relation:

$$V2max(kopt) = \sqrt{\frac{R2}{R1}}\frac{Vg}{2},$$

where V2max is the voltage across the parallel oscillating circuit for the optimal coupling between the oscillating circuits, R1 is the series resistance of the series oscillating circuit, R2 is the equivalent resistance of the transponder brought in parallel on its oscillating circuit, and Vg is the excitation voltage of the series oscillating circuit.

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7. The electromagnetic transponder of claim 1, wherein the number of turns of the inductance of the oscillating circuit of the transponder ranges between 5 and 15.

8. The electromagnetic transponder of claim 1, wherein the respective values of the capacitance and of the inductance of the parallel oscillating circuit range between 5 and 100 pf and between 2 and 25 μH.

9. A terminal for generating an electromagnetic field adapted to cooperating with at least one transponder when said transponder enters this field, including a series oscillating circuit for generating the electromagnetic field, this series oscillating circuit being sized so that the coupling coefficient between the respective oscillating circuits of the terminal and of the transponder strongly decreases when the distance separating the transponder from the terminal becomes greater than a predetermined value.

10. The terminal of claim 9, wherein the components of its oscillating circuit are sized to fulfill the operating conditions of the transponder of claim 1.

11. The terminal of claim 10, wherein the inductance of its series oscillating circuit includes a single turn.

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12. A system of contactless electromagnetic transmission between a terminal and a transponder, wherein the transponder is that of claim 1.

13. A system of contactless electromagnetic transmission between a terminal and a transponder, wherein the terminal is that of claim 9.